Los Alamos National Laboratory **Environmental Restoration Program** **Standard Operating Procedure**	No: LANL-ER-SOP-06.29 Rev: 0

SINGLE-STAGE SAMPLING FOR SURFACE WATER RUN-OFF

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1.0 PURPOSE

This procedure details the methodology adopted to collect discrete samples of surface water run-off from hillsides or ephemeral watercourses. Analysis of water and sediments in surface water run-off yields information on contaminants of concern (COCs) that may be moving out of solid waste management units.

2.0 SCOPE

2.1 Applicability

This procedure is applicable to all designs of single-stage samplers (SSS) but is focused toward collection of run-off from small rivulets or other minor discharge points. Reference should also be made to LANL-ER-SOP-1.02, Sample Containers and Preservation; and LANL-ER-SOP-1.04, Sample Control and Field Documentation.

2.2 Training

Technicians constructing and installing SSS must be field trained on-site by personnel experienced in the construction and operation of SSS.

3.0 DEFINITIONS

There are no unique definitions in this procedure.

4.0 BACKGROUND AND PRECAUTIONS

Single-stage samplers were developed by the U.S. Geological Survey as a simple method to obtain suspended-sediment and surface water run-off samples automatically and without immediate attention. The samplers are designed to collect water when the water surface rises to a selected stage. There are no special precautions to be heeded in operating SSS.

5.0 EQUIPMENT

Equipment to be used in the construction of SSS include:

- glass or plastic bottles,
- tubing of different material dependent on constituents to be analyzed, and
- other parts as needed contingent on the design of SSS adopted by the user.

6.0 PROCEDURE

6.1 Design

Single-stage samplers are constructed to fit the user's need (USGS 1961). One design is depicted in Attachment A. This design consists of a 1 gallon plastic bottle fitted with a two-hole rubber stopper. The tubing is made of copper and is forced through the holes in the stopper so that one tube can serve as an air vent and the second tube can serve as the water inlet. A depiction of the design utilized should be included in the documentation that is forwarded to the Records Processing Facility.

6.2 Installation

Single-stage samplers are installed so that surface water will flow into the prepared bottle. Installation may involve digging a hole to place the bottle in, placing a bottle at the end of a weir or any other technique that will allow the bottle to fill with surface water run-off. In the design that utilizes emplacing the bottle in a hole, the area downstream from the bottle must be built or dammed up (staged) so that water collects or ponds around the inlet tube for the bottle. The bottle and inlet tube in this design must be located below the surface of any ponded water so that flow will be by gravity via the tube and into the bottle.

6.3 Collection

After a storm event, the bottles must be checked for water as soon as possible. If the bottles contain water, they should be immediately removed. The bottles should be immediately capped and placed in a cooler if desired constituents require preservation at low temperatures. As part of the records kept on sample collection, a notation should be made on the probable date of the storm event that led to the sample collection.

6.4 Sample Preparation

Sample preparation (filtration, acidification) will depend on the information desired by the user. The user should refer to LANL-ER-SOP-1.02, Sample Container and Preservation. At a minimum specific conductance and pH should be determined by the user as soon as possible.

7.0 REFERENCES

LANL-ER-SOP-01.02, Sample Containers and Preservation
LANL-ER-SOP-01.04, Sample Control and Field Documentation
LANL-ER-AP-02.1, Procedure for LANL ER Records Management

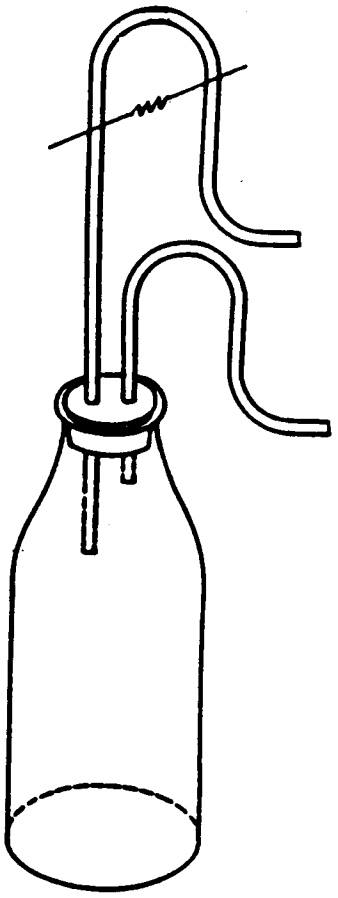
USGS Report No. 13. The Single-Stage Sampler For Suspended Sediment, 1961.

8.0 RECORDS

It is the responsibility of the Operable Unit Project Leader to assure that all records associated with data collection using this procedure will be transferred to the Environmental Restoration (ER) Records Processing Facility in accordance with the Procedure for Los Alamos National Laboratory (LANL) Records Management (LANL-ER-AP-02.1).

9.0 ATTACHMENTS

Attachment A - Example of Single-Stage Sampler



Example of a Single-Stage Sampler